

EVALUATION OF SWEET CORN VARIETIES FOR PROCESSING - 1959

by
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The evaluation of sweet corn varieties for processing has been conducted at the Ohio Agricultural Experiment Station for the past eleven years. In 1958, seven varieties were included in the trials for processing.

The corn was planted on June 24, 1958 in rows (2 rows each with 531 hills per row). Each variety was harvested at various stages of maturity. All the corn was canned as cream style corn, using the following standard formula:

corn.....	74%
water.....	18.5%
sugar.....	5%
salt.....	0.5%
starch.....	1.5%

Quality was determined as follows (the results as reported in the following tables are the average values):

Growth Degree Days - Calculated by using 50°F. as the base temperature using the Columbus, Ohio Weather Bureau data.

Specific Gravity - Determined on a 100 gram sample of cut corn as follows:

$$\text{Specific gravity} = \frac{\text{wt. of corn in air} \times \text{specific gravity of water}}{\text{wt. of corn in air} - \text{wt. of corn in water}}$$

Succulence - Determined with Succulometer - values are cc. of juice extracted from a 100-gram sample of cut corn.

Percent Moisture - Determined with the aid of the vacuum oven by drying a 25 gram sample under 26 inches of vacuum at 70°F. for 24 hours.

Percent AIS - Determined on a 10 gram sample in accordance with the F&DA Alcohol Insoluble Solids (AIS) method for the Minimum Standards of Quality for Canned Sweet Corn.

Percent Pericarp - Determined on a 25 gram sample in accordance with the method of Gould, et al (OAES Res. Circ. 19, 1953).

Diameter of Kernels - Determined by measuring the total width of 20 kernels.

Consistency - Determined with the aid of the Adams Consistometer. The Adams consistometer values range from 1 (thin) to 18 (thick). The filler samples were determined on hot samples at the filler and the canned product was determined after 4 months storage.

WDR Values - The Washed Drained Residue (WDR) was determined by washing a sample of Corn on an eight mesh screen and weighing the residue remaining on the screen and calculating the percent remaining on the screen.

U. S. Grade - The U. S. Grade was determined in accordance with the U. S. Standards for Grades of Canned Cream Style Corn.

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Table 1 - RAW PRODUCT DATA FOR SWEET CORN VARIETIES BY HARVESTS
Columbus, 1950

Variety	Growing Days	Growth Degree Days	Spec. Grav.	Succu- lence	% Moist- ure	% AIS	% Peri- carp	Diameter 20 Kernel	Yields per Acre
Victory Golden W(50375R)	77	1753	1.058	33.5	-	13.32	1.168	71/2"	5.3
	85	1899	1.078	32.0	76.75	19.67	1.188	71/10"	4.0
	88	1923	1.088	33.0	71.38	-	2.040	71/2"	5.2
	90	1950	1.114	23.0	70.00	24.01	1.728	84/5"	6.0
F.M. Cross FM(21500)	76	1741	1.101	21.0	68.89	21.72	1.404	7"	5.1
	85	1899	1.119	9.0	65.17	30.68	2.648	81/5"	4.5
	88	1923	1.132	12.0	65.64	-	2.976	69/10"	3.3
Asgrow Golden 60 A(74568)	77	1753	1.069	32.0	-	16.18	1.632	76/10"	4.7
	85	1899	1.097	34	73.66	23.28	1.720	64/5"	3.7
	88	1923	1.093	33	71.82	23.80	-	71/2"	4.2
	90	1950	1.105	20	70.14	34.27	2.080	8"	5.2
Deep Gold W	85	1899	1.095	22	73.96	19.79	1.508	61/10"	6.9
	85	1899	1.096	27	73.23	20.06	1.528	61/12"	5.8
	88	1923	1.093	34	72.83	21.98	1.968	53/10"	6.2
	90	1950	1.077	23.6	71.34	21.22	1.904	67/10"	4.9
Hybrid #102 FM (86055)	75	1741	1.079	27	76.85	15.41	1.584	62/5"	5.3
	77	1753	1.050	28	-	11.13	1.400	73/5"	4.7
	85	1899	1.090	17	69.54	26.64	1.960	71/2"	6.9
	88	1923	1.109	23	69.77	32.29	2.288	71/10"	4.1
Hybrid #103 FM(82823)	76	1741	1.115	19	71.43	27.52	3.284	82/3"	4.0
	77	1753	1.107	26	-	24.03	1.876	83/10"	3.9
	85	1899	1.154	8	58.77	34.75	3.420	79/10"	4.2
Golden Hybrid 583 W(50833F)	85	1899	1.091	37	73.57	20.82	1.760	61/2"	5.6
	90	1950	1.095	22	69.15	21.90	1.836	59/10"	5.9

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Table 2 USDA GRADES BY FACTORS OF QUALITY AND OTHER QUALITY DATA FOR EACH
VARIETY AT EACH HARVEST FOR CANNED CREAM STYLE CORN * Columbus, 1958

U.S.D.A. Grade Factors

Variety	Har- vest	Col- or	Consis- tency	Absence -of Defects	Tend. and Mat.	Fla- vor	Total Score	Grade	Adams Consistency	% Can	% AIS	% WTR
Victory	1	7*	14** thin	20	30	15**	86	C	0	3.75	8.69	37.5
Golden	2	10	16 thin	20	26**	18	88	B	0	4.50	14.0	30.9
	3	8	18	20	26**	15**	87	C	5.25	9.0	15.8	39.3
	4	8	18	20	25**	18	89	B	6.75	9.75	18.3	40.8
F.M. Cross	1	8	18	20	24**	18	88	B	8.75	11.2	19.3	44.6
	2	8	18	20	22**	17	87	C	8.25	12.7	19.8	51.0
	3	8	17thick	20	22**	14**	87	C	10.75	13.0	19.9	51.0
Asgrow	1	8	16thin	20	27	18	89	B	0	4.5	13.4	41.6
Golden	2	9	18	20	27	18	92	A	6.0	7.8	14.9	39.4
60	3	9	18	20	25**	18	90	B	8.0	10.0	16.3	37.4
	4	10	19	20	26**	19	94	B	6.0	8.5	16.9	44.2
Deep Gold	1	7*	18	20	25**	17	87	B	6.0			
	2	8	17	20	27	18	90	A	3.0	8.0	18.3	41.1
	3	9	16thin	20	28	16	89	B	2.5	7.5	14.6	34.3
Hybrid #102	1	8	18	20	27	18	91	A	3.5	8.0	14.0	48.4
	2	8	16thin	20	30	18	92	A	0	5.5	9.9	40.3
	3	9	16thick	20	22**	17	84	C	10.5	13.5	18.8	55.9
	4	9	18	20	24**	18	89	B	7.6	11.0	18.6	46.3
Hybrid #103	1	8	16thick	20	22**	18	84	C	6.2	11.8	19.5	53.5
	2	9	18	20	26**	18	91	B	7.8	11.8	18.2	51.3
	3	8	16thick	17	22**	16	79	C	8.5	13.3	21.7	53.8
Golden Hybrid	1	7*	17	20	26**	18	88	C	6.0	9.3	17.0	50.2
583	2	8	17	20	27	18	90	A	3.3	7.3	16.8	36.5

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